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FLOOD INSURANCE STUDY

CITY OF MADISONVILLE, TEXAS
MADISON COUNTY

MARCH 5, 1990

Federal Emergency Management Agency

COMMUNITY NUMBER - 480464

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Flood Insurance Study Effective Date: March 5, 1990

Flood Insurance Study Revised:

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FLOOD INSURANCE STUDY
CITY OF MADISONVILLE, MADISON COUNTY, TEXAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the City of Madisonville, Madison County, Texas, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by the Soil Conservation Service (SCS) during the preparation of the Floodplain Management Study and Dam Breach Study for Town Branch and its tributaries. That report was completed in April 1988.

1.3 Coordination

On July 12, 1988, the City of Madisonville was notified by FEMA of the initiation of a Flood Insurance Study for the community.

In April 1986 the City of Madisonville and the Madison County Commissioners Court passed resolutions requesting, through the Texas Water Commission (TWC), that the SCS conduct a floodplain management study and breach analysis on Town Branch and its tributaries. The Bedias Creek Soil and Water Conservation District passed a resolution on May 5, 1986, concurring in this request and recommending that the SCS begin the study.

On March 31, 1989, a final Consultation and Coordination Officer's (CCO) meeting was held with representatives of FEMA and the city to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the City of Madisonville, Madison County, Texas. The area of study is shown on the Vicinity Map (Figure 1).

The following streams were studied by detailed methods: Town Branch, for its entire length within the community; and Town Branch Tributary 1, from its confluence with Town Branch to a point approximately 470 feet upstream of Minden Street. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

The remaining portions of Town Branch Tributary 1 and other unnamed tributaries were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards.

2.2 Community Description

The City of Madisonville is located in central Madison County, in east-central Texas. It is completely surrounded by the Town of Madisonville.

Commercial and residential development has taken place along the downstream portion of Town Branch, below two SCS dams, within the City of Madisonville. A breach of either of the two existing SCS dams in this area, although of low probability, would flood many of these structures.

Town Branch has its headwaters approximately 1.5 miles north of the Town of Madisonville, and flows towards the south and southwest through the town, to its confluence with Caney Creek approximately 2 miles south of the town. Caney Creek is a tributary to Bedias Creek, which is a tributary to the Trinity River. Several small, unnamed tributaries flow into Town Branch; one of these, flowing from the east, has its confluence with Town Branch within the corporate limits of the City of Madisonville. The drainage area of the total watershed is approximately 3.6 square miles. The study area is located within U. S. Geological Survey (USGS) Hydrologic Unit No. 12030202.

Although some authorities place this vegetational area in the oak hickory forest association to the east, many classify the Post Oak Savannah as a true prairie association of the grassland formation. Upland mottes of post oak and blackjack oak were originally interspersed within grasslands of predominantly little bluestem, Indiangrass, switchgrass, purpletop, and Texas wintergrass. Water oak, green ash, sugarberry, and elms grow in the bottomlands along Town Branch and its tributaries. This watershed comprises 2,300 acres.

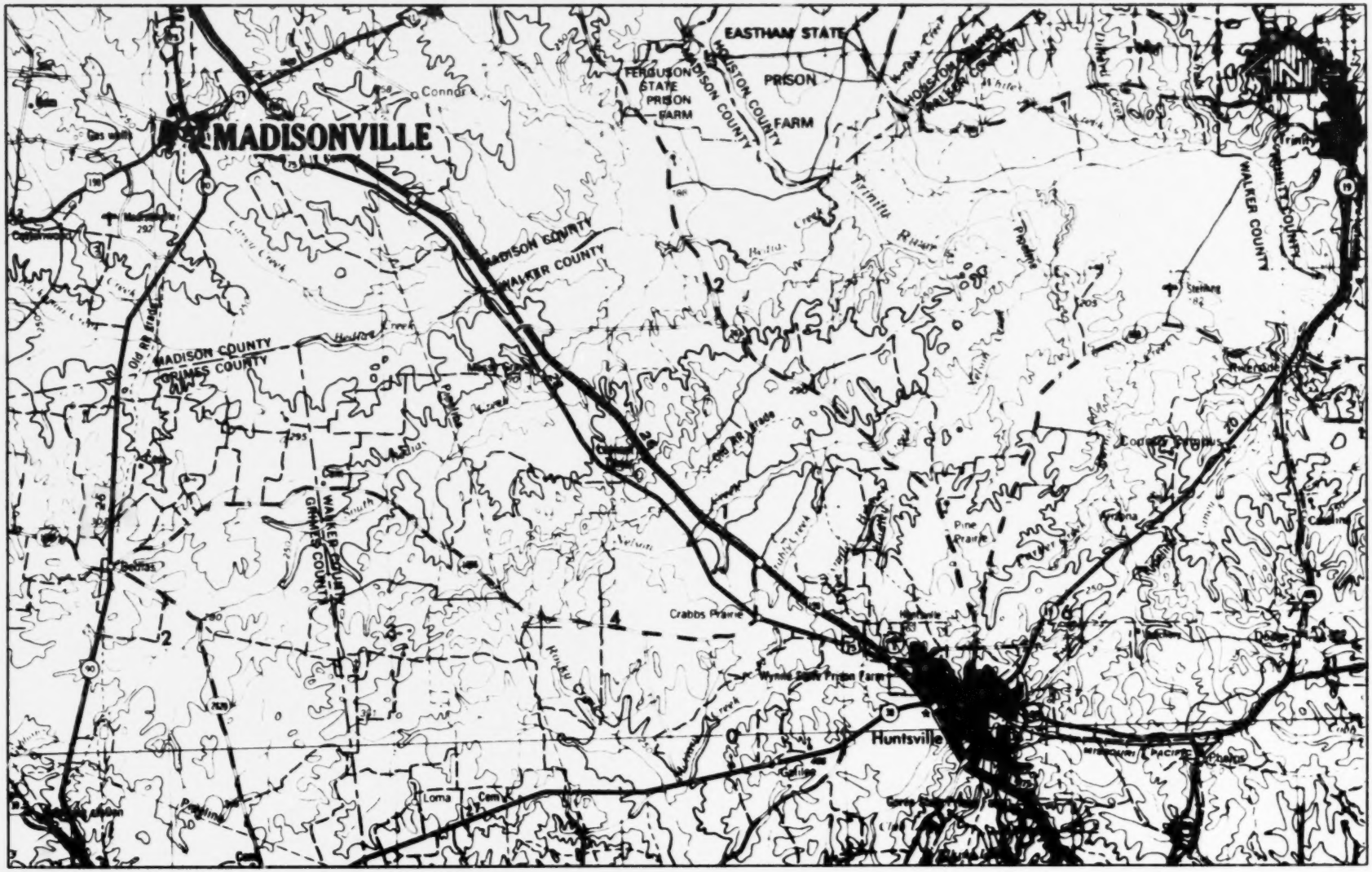

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF MADISONVILLE, TX

(MADISON CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

VICINITY MAP

The topography of the watershed is gently to moderately rolling. Elevations range from 350 feet in the headwaters to 225 feet on the floodplain near Caney Creek.

2.3 Principal Flood Problems

The City of Madisonville has experienced frequent flooding along U. S. Route 75 and State Route 21 from Town Branch and its tributaries prior to watershed completion.

Potential flood heights for the 100- and 500-year floods are shown in Figures 2 and 3.

Figure 2 - Potential flood heights at intersection of U. S. Route 75 and State Route 90.

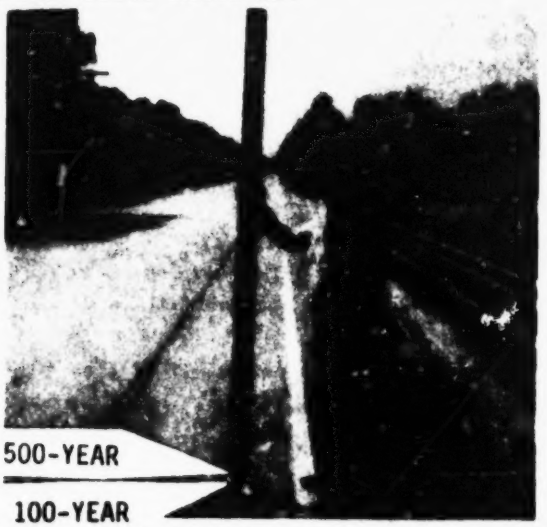

Figure 3 - Potential flood heights at intersection of Town Branch and Madison Street.

2.4 Flood Protection Measures

Two floodwater-retarding structures, SCS dams, have been constructed within the corporate limits of the City of Madisonville. Both of them provide excellent protection; however, some shallow flooding will occur in the event of a 100-year frequency flood. Major flooding would occur in the event of a breach of either of the dams.

Effective conservation land treatment is presently being carried out by land users within the watershed. Excess runoff or erosion and sedimentation due to lack of conservation land treatment is not a major cause of flooding. It is recommended that nonprime farmland soils be used for construction sites and other non-farm uses rather than for prime farmland. Information on prime farmland soils in Madison County may be obtained from the SCS Office in the City of Madisonville.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. A flood event of a magnitude which is expected to be equaled or exceeded once on the average during any 100-year period (recurrence interval) has been selected as having special significance for floodplain management and for flood insurance rates. This event, commonly termed the 100-year flood, has a 1 percent chance of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the community.

Hydrology for the streams studied by detailed methods was developed using the Unit Hydrograph method contained in SCS Model TR-20 (Reference 1). Rainfall frequency data were obtained from Weather Bureau Technical Paper No. 40 (Reference 2). Values greater than the 100-year frequency event were determined by extrapolation of the rainfall versus frequency graph. Peak discharge values were determined by flood routing various storm frequencies with a 24-hour

rainfall duration using SCS Model TR-20 (Reference 1). The program computes surface runoff resulting from any synthetic or natural rainstorm, and routes the flow through stream channels and reservoirs. Results include, but are not limited to, a combination of the routed hydrograph with those from other tributaries and a printout of the peak discharges, their time of occurrence, and the water-surface elevations for each computed discharge at any desired cross section or structure.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
TOWN BRANCH					
At Elm Street	12.46	1,426	1,932	2,221	2,819
At Shipp Street	11.37	758	1,068	1,242	1,589
TOWN BRANCH TRIBUTARY 1					
At U. S. Route 75 (May Street)	10.40	552	780	880	1,092
At Minden Street	10.30	125	171	192	246

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross sections were field surveyed and selected to represent the stream hydraulics and floodplain areas.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1) and the Flood Insurance Rate Map (Exhibit 2) where applicable.

Water-surface elevations of floods of the selected recurrence intervals for the streams studied by detailed methods were computed using SCS computer model WSP-2 (Reference 3). This model was used to develop the hydraulic characteristics of the valley downstream of the SCS dams. The model develops a series of water-surface profiles, defining the stage-discharge relationship throughout the valley. The boundaries of the watershed were determined using USGS topographic maps. The top of the watershed begins approximately 1.5 miles north of the corporate limits of the City of Madisonville. Hydraulic evaluations were based on synthetic frequency methods.

The methodology presented in SCS Technical Release No. 66 was used in the breach analysis of each dam. A 100-year, 24-hour storm was used in the breach analysis. From the representative stream and road cross sections, water-surface profiles were developed by the modified slope-area method. The effects of bridges and culverts on the stream hydraulics were determined by use of the Bureau of Public Roads (BPR) Method (Reference 4). Computations were made using the SCS WSP-2 computer program. Using the output data for this program, rating curves were plotted for each cross section. These curves show the relationship between stage or elevation and discharge. Water-surface profiles were developed from these rating curves and the computer results of TR-20 routings. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. Starting water-surface elevations for the streams studied by detailed methods were determined from normal depth calculations.

Channel roughness factors (Manning's "n") used in the hydraulic computations were determined on the basis of field inspection, analysis of photographs, and engineering judgment. Channel "n" values for Town Branch ranged from 0.045 to 0.090, and the overbank "n" value was 0.090. Channel "n" values for Town Branch Tributary 1 ranged from 0.040 to 0.075, and the overbank "n" values ranged from 0.075 to 0.090.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross

section. Between cross sections, the boundaries were interpolated using aerial photographs and topographic maps at a scale of 1:2,000 with a contour interval of 5 feet (Reference 5).

For the streams studied by approximate methods, the 100-year floodplain boundaries were delineated using the Flood Hazard Boundary Map for the City of Madisonville (Reference 6).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 2). The computed floodways are shown on the Flood Insurance Rate Map (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway widths for Town Branch extend beyond the corporate limits.

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FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Town Branch								
A	9,745[1]	491[3]	1,627	1.74	232.1	232.1	233.1	1.0
B	10,815[1]	305	1,009	2.80	235.8	235.8	236.8	1.0
C	13,225[1]	496	1,402	2.09	242.1	242.1	243.1	1.0
D	14,475[1]	373	1,022	2.53	246.3	246.3	247.3	1.0
E	15,145[1]	301	839	2.65	249.7	249.7	250.7	1.0
F	15,260[1]	295	1,023	2.17	250.5	250.5	251.5	1.0
G	15,515[1]	154	671	3.08	251.1	251.1	252.1	1.0
H	15,690[1]	158	595	3.47	251.8	251.8	252.8	1.0
I	16,625[1]	63	443	3.53	254.0	254.0	255.0	1.0
J	16,735[1]	85	514	3.03	254.5	254.5	255.5	1.0
K	16,940[1]	116	440	3.55	255.4	255.4	256.4	1.0
L	17,050[1]	384	1,641	0.95	257.0	257.0	258.0	1.0
M	17,600[1]	251	1,164	1.32	257.0	257.0	258.0	1.0
N	17,720[1]	290	1,320	1.17	257.3	257.3	258.3	1.0
O	18,700[1]	215	944	1.96	258.8	258.8	259.8	1.0
P	18,850[1]	222	813	2.28	259.1	259.1	260.1	1.0
Q	19,965[1]	64	379	3.52	261.6	261.6	262.6	1.0
R	20,675[1]	99	466	2.67	263.7	263.7	264.7	1.0
S	20,790[1]	70	451	2.75	266.3	266.3	267.3	1.0
Town Branch Tributary 1								
A	400[2]	137	349	2.52	252.2	251.2[4]	252.2	1.0
B	535[2]	37	128	6.32	253.9	253.9	254.9	1.0
C	875[2]	326	465	1.74	254.7	254.7	255.7	1.0

[1]Feet above confluence with Rock Creek
[2]Feet above confluence with Town Branch
[3]This width lies entirely outside the corporate limits
[4]Elevation computed without consideration of backwater effects from Town Branch

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF MADISONVILLE, TX

(MADISON CO.)

FLOODWAY DATA

TOWN BRANCH, TOWN BRANCH TRIB. 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Town Branch Tributary 1 (continued)								
D	1,340	34	157	4.40	258.9	258.9	259.9	1.0
E	1,460	69	323	2.14	260.1	260.1	261.1	1.0
F	2,150	18	58	3.35	264.8	264.8	265.8	1.0
G	2,270	65	248	0.79	268.4	268.4	269.4	1.0

[1]Feet above confluence with Town Branch

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

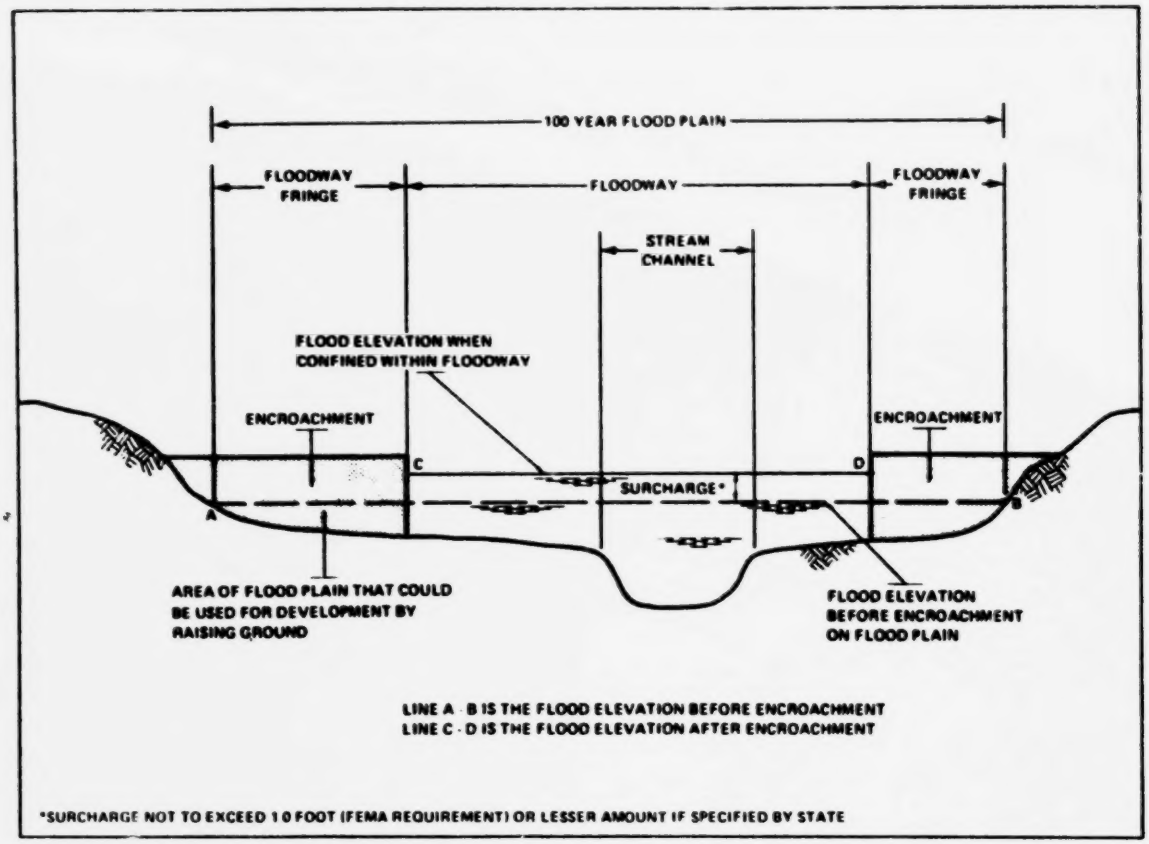
CITY OF MADISONVILLE, TX

(MADISON CO.)

FLOODWAY DATA

TOWN BRANCH TRIBUTARY 1

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A - B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C - D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 4

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 2 for certain downstream cross sections of Town Branch Tributary 1 are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplain. The locations of selected cross sections used in the hydraulic analyses are shown where applicable.

7.0 OTHER STUDIES

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the City of Madisonville (Reference 6).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Federal Regional Center, 800 North Loop 288, Denton, Texas 76201-3698.

9.0 BIBLIOGRAPHY AND REFERENCES

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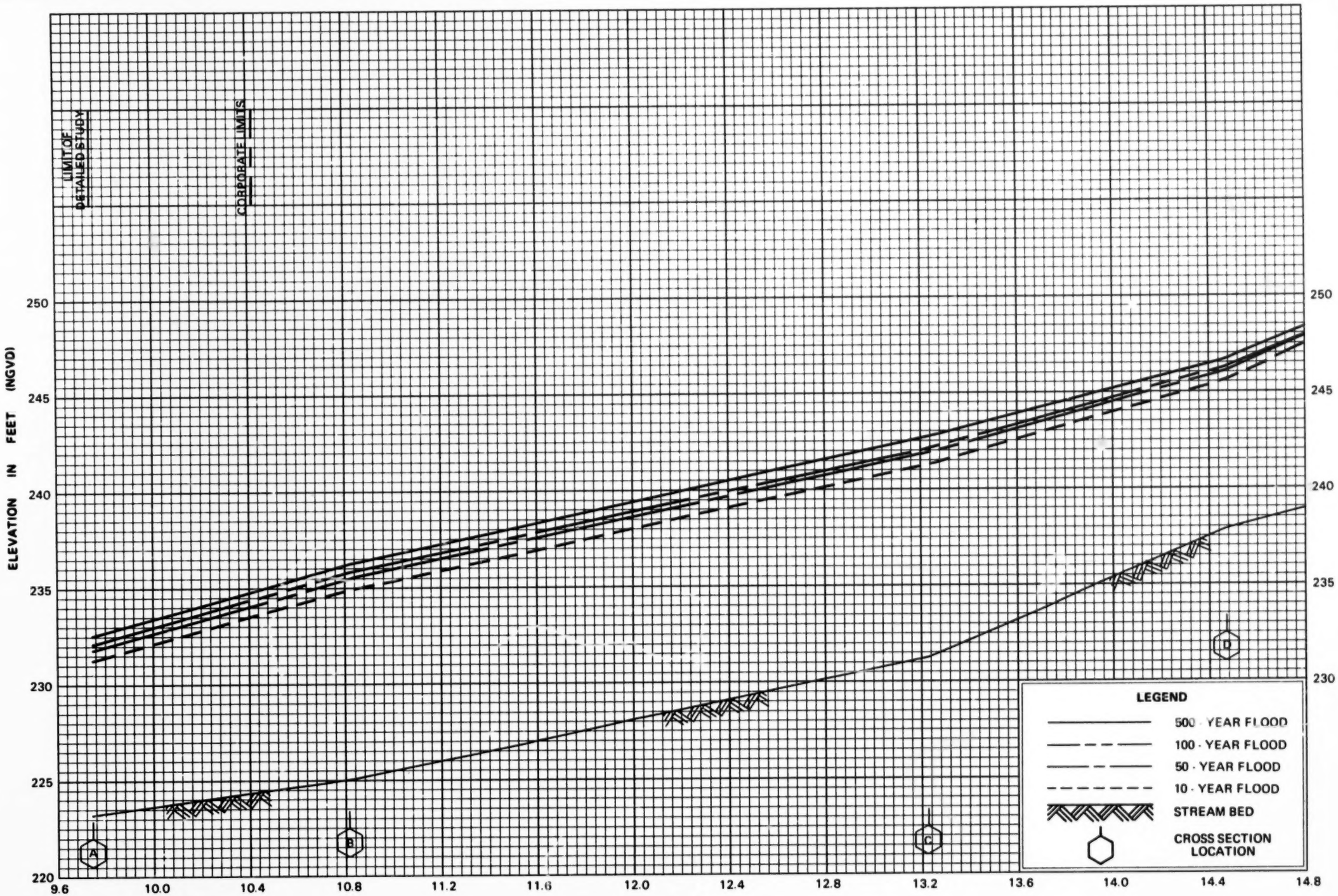
EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 1	273.11	On head of railroad spike, in northeast corner of Collard Street and Shipp Street.
RM 2	272.86	On head of 60d nail, in southwest corner of Magnolia Street and Minden Street, in northeast side of power pole.
RM 3	269.43	Chiseled square, at northwest corner of Collard Street and U. S. Route 75 (May Street) on top of curb.
RM 4	276.39	Standard bronze disk, in southeast quadrant of Collard Street and Elm Street, in Gulf States utility yard, in concrete base of old water tower.
RM 5	281.95	Chiseled X on top of curb, in southeast corner of State Route 21 (Main Street) and Minden Street.
RM 6	262.88	Head of 60d nail, at southwest corner of State Route 21 (Main Street) and Mary Street in west side of power pole with light.
RM 7	262.10	Chiseled square on top of curb, at northeast corner of Madison County Courthouse, in front of John Walker monument, in southwest corner of State Route 21 (Main Street) and Madison Street.
RM 8	251.16	On head of 60d nail, at northeast corner of Elm Street and South Street, on north side of power pole.
RM 9	251.41	Top of bent 60d nail, approximately 1,250 feet south of Elm Street crossing of Town Branch, approximately 275 feet northwest of fence corner, approximately 60 feet west of fence, north base of 30-inch diameter post oak tree.
RM 10	259.55	Top of bent 60d nail, approximately 400 feet southwest of southwest end of tank, approximately 125 feet east of old railroad, in northwest root of 30-inch diameter hackberry tree.
RM 11	241.81	Top of bent 60d nail, approximately 600 feet southwest of sewer plant, approximately 100 feet southeast of fence corner, in east base of 26-inch post oak tree, east of Mitchell Street.

EXHIBIT 3 - ELEVATION REFERENCE MARKS (continued)

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 12	273.85	Chiseled X at northeast corner of May Street and Bacon Street, on top of curb.
RM 13	271.78	On top of bolt, on top of fire hydrant, at northwest corner of Mary Street and Bacon Street.
RM 14	282.04	Head of 60d nail, in front of School Administration Building, in west base of fence corner post, in southeast quadrant of Minden Street and Bacon Street.



FLOOD PROFILES

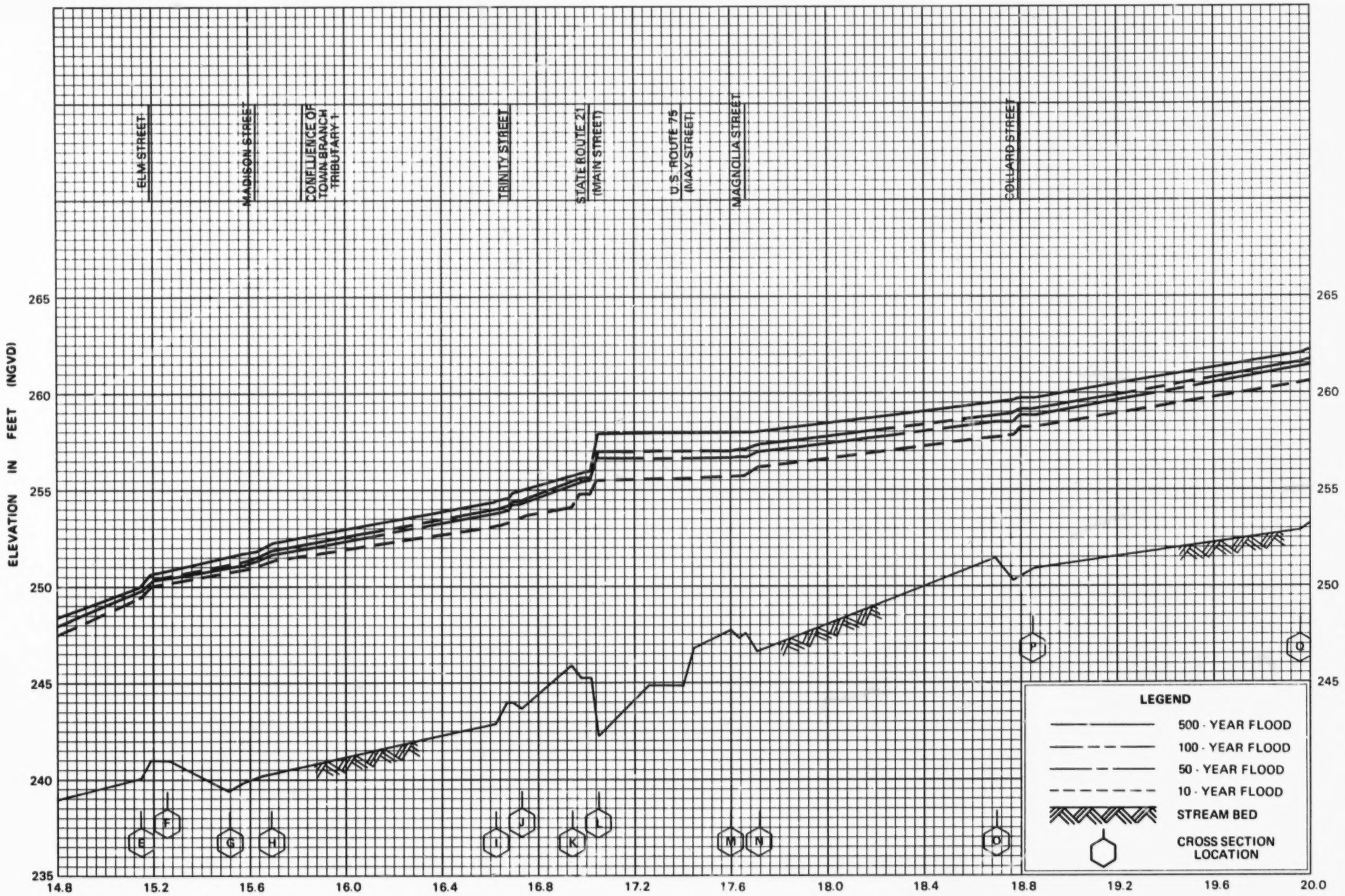
TOWN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF MADISONVILLE, TX

(MADISON CO.)

01P



FLOOD PROFILES

TOWN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF MADISONVILLE, TX
(MADISON CO.)

02P

SHIPP STREET

CORPORATE LIMITS

THE 50-YEAR FLOOD PROFILE IS TOO CLOSE TO THE 100-YEAR ELEVATION TO BE SHOWN SEPARATELY

ELEVATION IN FEET (NGVD)

270

265

260

255

250

R

S

20.0 20.4 20.8 21.2 21.6 22.0

STREAM DISTANCE IN THOUSANDS OF FEET ABOVE CONFLUENCE WITH ROCK CREEK

LEGEND

- 500 - YEAR FLOOD
- 100 - YEAR FLOOD
- 50 - YEAR FLOOD
- 10 - YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

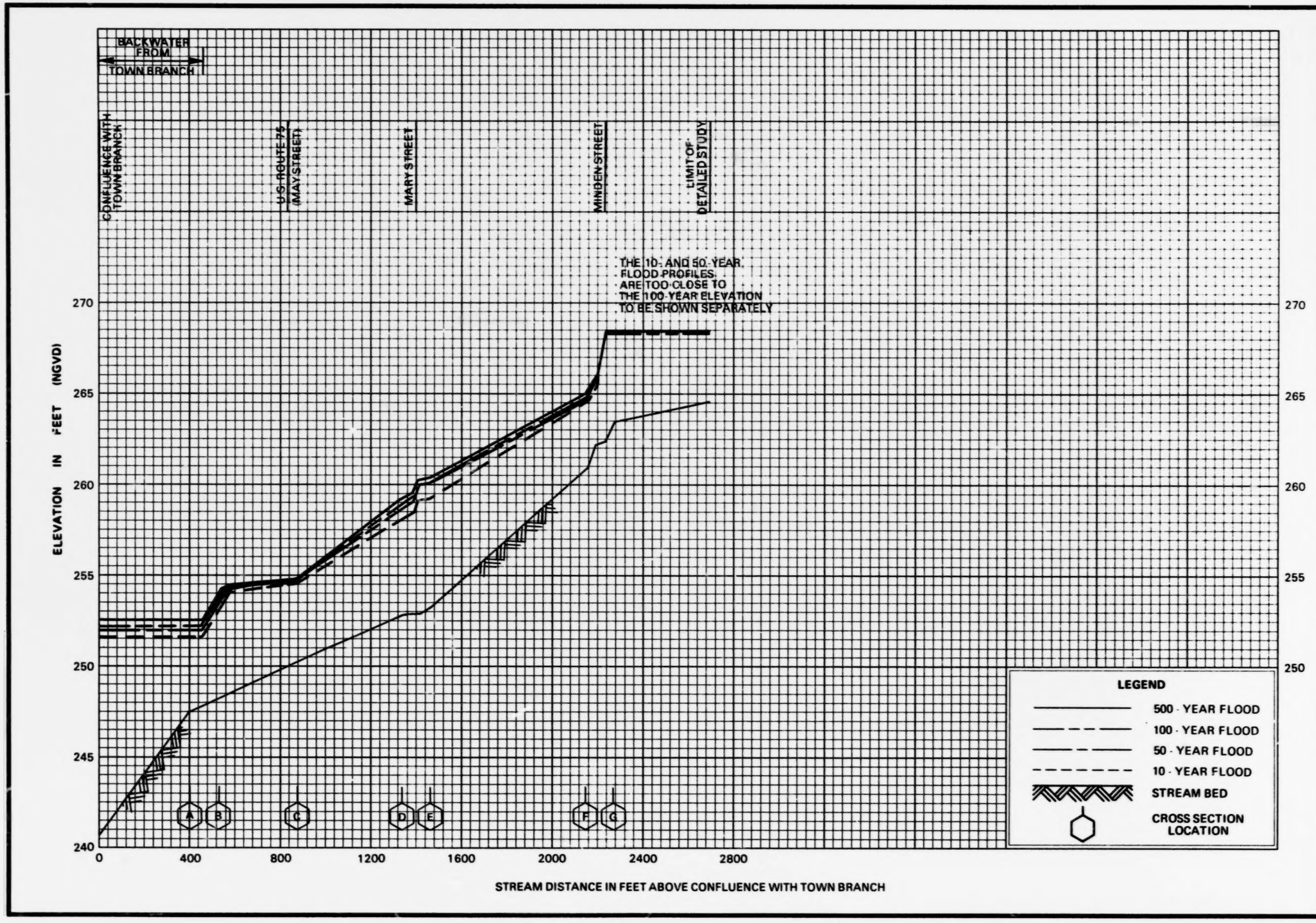
TOWN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF MADISONVILLE, TX

(MADISON CO.)

03P



FLOOD PROFILES

TOWN BRANCH TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF MADISONVILLE, TX
(MADISON CO.)

04P